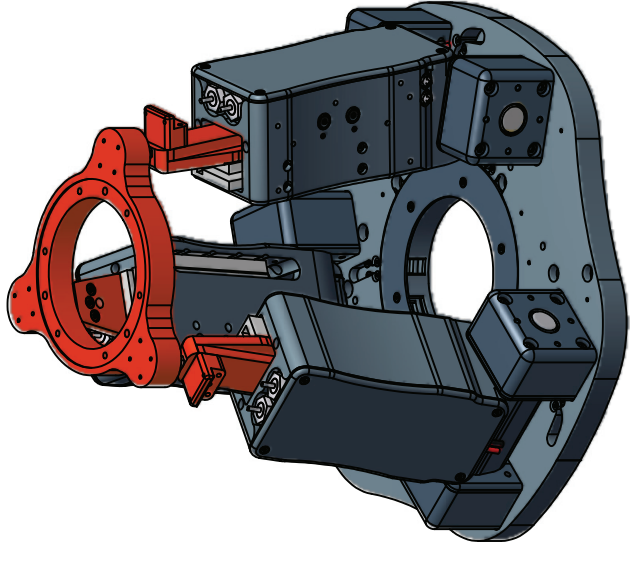




ALIO STAGE AND MOTOR SPECIFICATIONS



MODEL	UNITS	AI-TRI-LM-600	AI-TRI-LM-2400	AI-TRI-LM-2400-MS	AI-TRI-LM-4000	AI-TRI-LM-5500	AI-TRI-LM-9200	AI-TRI-LM-10600
Z TRAVEL	--	6.0	24	24	40	55	92	--
PITCH AND ROLL RANGE [9]	mm	+/-3	+/-15	+/-16	+/-16	+/-20	+/-20	+/-20
MAX LINEAR VELOCITY [10]	deg	0.08	0.1	0.1	0.1	0.2	0.1	0.2
MAX ANGULAR VELOCITY (PITCH & ROLL) [10]	deg/s	90	90	90	90	90	90	90
ASSEMBLY MASS	kg	3.4	4.5	6.3	13.6	15.6	52	23.2
Z MOVING MASS	kg	0.80	1.6	2.1	3.0	3.6	21	6.6
MAX PAYLOAD [11]	kg	2.0	3.5	3.5	7.5	10	35	10
MAX CENTER OF GRAVITY HEIGHT [11,12]	mm	40	50	50	75	75	75	100
COUNTERBALANCE PRESSURE [13]	psi	25	40	--	42	54	40	66
LINEAR RESOLUTION	nm	~5	~5	~5	~5	~5	~5	~5
PITCH AND ROLL RESOLUTION	arc-sec	~0.04	~0.04	~0.03	~0.02	~0.02	~0.02	~0.02
MOTOR INFORMATION								
MOTOR TYPE	--	LINEAR BRUSHLESS						
MOTOR MODEL	--	C12-1	P16-0.5	P16-0.5	P16-1	P16-1	P20-2	P16-2
MAGNETIC PITCH (N-N)	mm	30.48	30.48	30.48	30.48	30.48	60.96	30.48
MAX VOLTAGE (LINE TO LINE) [1]	V	500	500	500	500	500	500	500
ELECTRICAL TIME CONSTANT	msec	0.14	0.20	0.20	0.20	0.20	0.31	0.20
MAX MOTOR TEMP	°C	130	130	130	130	130	130	130
DELTA CONNECTION								
FORCE CONSTANT	N/Apk	3.5	7.2	7.2	14.3	14.3	36.6	28.7
PHASE RESISTANCE (@25°C) [2,3]	Ohm	2.9	2.9	2.9	5.9	5.9	7.8	11.7
PHASE RESISTANCE (@130°C) [2,3]	Ohm	4.2	4.2	4.2	8.3	8.3	11.0	16.6
INDUCTANCE	mH	0.6	0.6	0.6	1.2	1.2	2.4	2.3
CONTINUOUS FORCE [4]	N	10	15	15	47	47	141	93
CONTINUOUS CURRENT [4]	Apk	2.8	2.1	2.1	3.2	3.2	3.9	3.2
PEAK FORCE [5]	N	21	74	74	148	148	447	295
PEAK CURRENT [5]	Apk	6.0	10.3	10.3	10.3	10.3	12.2	10.3
BACK EMF CONSTANT	V/m/s	3.5	7.2	7.2	14.3	14.3	36.6	28.7
WYE CONNECTION		[5]						
FORCE CONSTANT	N/Apk	7.2	12.4	12.4	24.8	24.8	63.3	49.7
PHASE RESISTANCE (@25°C) [2,3]	Ohm	8.7	8.8	8.8	17.6	17.6	23.3	35.2
PHASE RESISTANCE (@130°C) [2,3]	Ohm	12.5	12.4	12.4	24.9	24.9	32.9	49.8
INDUCTANCE	mH	1.7	1.8	1.8	3.5	3.5	7.2	7.0
CONTINUOUS FORCE [4]	N	10	23	23	47	47	141	93
CONTINUOUS CURRENT [4]	Apk	1.6	1.9	1.9	1.9	1.9	2.2	1.9
PEAK FORCE [5]	N	21	74	74	148	148	447	295
PEAK CURRENT [5]	Apk	3.5	10.3	10.3	5.9	5.9	7.1	5.9
BACK EMF CONSTANT	V/m/s	7.2	12.4	12.4	24.8	24.8	63.3	49.7

Notes:

- Back EMF plus IR drop must not exceed maximum line to line voltage.
- Resistance values do not include cable resistance. For P16 motors cable resistance adds 0.146 ohm/m for Delta connection and 0.44 ohm/m for Wye Connection.
- Resistance values do not include cable resistance. For C12 motors cable resistance adds 0.251 ohm/m for Delta connection.
- Continuous operating limits are based on continuous operation at maximum temperature with a aluminum heatsink (300mm x 12.5mm x motor length).
- Maximum on time at peak operating limits is 10 seconds.
- Motor Connection type is internal to motor. All stages provided with default Delta connection unless otherwise specified.
- All electrical specifications may vary by 12% from listed values.
- Additional motor options are available for each stage for optimized performance as necessary per customer requirements.
- Angular travel is measured when the Z axis is at mid-stroke and the other angle is zero degrees. Deviation from this specified off axis position reduces angular travel.
- Maximum velocity specified is for motor in unloaded state. Stage velocity limitations vary greatly depending on stage load and motion profile.
- Higher payload options available upon special request.
- Contact ALIO technical sales for questions concerning high or offset centers of gravity.
- Pneumatic counterbalance supply pressure listed is the estimated pressure required at the max payload.

DRAWN: NBROWN
 CHECKED: [Signature]
 DATE: 5/12/2012

TITLE: **AI-TRI-LM-(Z TRAVEL)00**
-(OPTION)

Tolerances: Surface Roughness:
 x.x ± .05 in [1.3 mm]
 x.xxx ± .01 in [0.25 mm]
 x.xxx ± .005 in [0.13 mm] ✓ RMS MAX.
 Angles ± 0.5°

SIZE: B
 DWG NO: 0010-08008
 REV: 003

FINISH: SEE NOTES
 SCALE: 1 OF 1
 SHEET: 1 OF 1

ALIO INDUSTRIES PROPRIETARY INFORMATION
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